Harumi OCHI*: On the status of *Bryum Handelii* Broth. (Musci)

越智春美*: タキミハリガネゴケの正体

Bryum Handelii was established by Brotherus (1929a) upon the sterile material from Yunnan, China. As one of its allied taxa, *Bryum pulchro-alare* was known from Formosa and Japan (Brotherus, 1929b; Ochi, 1959). The latter species, however, has been reduced to a synonym of the former, after comparing them in detail with each other (Ochi, 1962). *B. Handelii* has thus been accepted as being distributed within the range of China, Formosa and Japan, and also as one of the "Sino-Himalayan and Japanese" elements (Ochi, 1962).

I have recently had a chance to study Australian and New Zealand mosses, which mostly belong to the subfamily Bryoideae; and it was revealed that *Bryum blandum* Hook. f. et Wils., which is distributed in New Zealand, Campbell Island and Tasmania, closely resembles *B. Handelii*, in spite of the facts that the former has been accepted as an alliance of *B. cellulare* Hook. (Hooker f. & Wilson, 1844), an old-tropical moss, and that the latter as a member of "Alpiniformia" (Brotherus, 1929b). In the present article the relation of *B. Handelii* to *B. blandum* is discussed.

My deep gratitude to the following persons should be acknowledged here for their kind help in making available the specimens studied and the literature: Mr. R. Ross (Keeper of Botany) and Mr. A.H. Norkett of British Museum (Nat. Hist.), and Dr. H. Roivainen (Curator) of Botanical Museum, University of Helsinki.

Morphology　These two mosses are not at all common in fruit. Only one out of all the collections of *B. Handelii* was fairly good in fruit; and also only one out of available specimens of *B. blandum* was very good, although some broken capsules or setae were seen in a few others. Thus, only the fact that the sporophyte was externally very similar to each other was confirmed.

Observing the gametophyte, the leaves are more sharply pointed or very

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* Biological Institute, Tottori University, Koyama-cho, Tottori. 鳥取大学教育学部生物学教室.

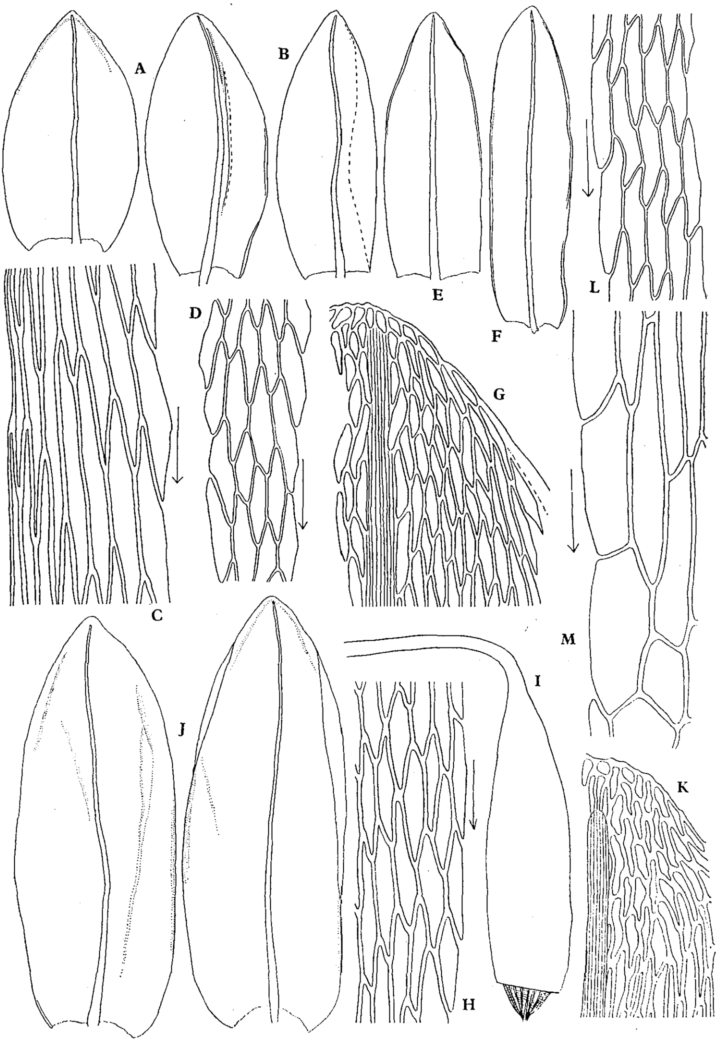

Fig. 1. *Bryum blandum* Hook. f. et Wils.

A, F & J. Leaves of main stems, ×22. B. Innovation leaf, ×22. C. Median margin of leaf, ×200. D, H & L. Lamina-cells in the median portion, ×200. F. Perichaetial leaf, ×22. G & K. Leaf-apices, ×200. I. Deoperculated capsule, ×11. M. Lamina-cells at the base along costa, ×200. A-D drawn from isotype (BM), E-I from "*Knight 223*" (H) and the remainder from "*Weymouth 2154*" (BM).

shortly acuminate, and in cases of the plants growing on the bark of trees and rocks, the costae are short-excurrent in *B. Handelii*; whereas in *B. blandum* the leaves always have very obtuse or completely rounded apices and the costae always cease just below the apex of leaves.

Although the plants are generally much more branched, and also the lamina-cells are narrower in *B. Handelii* than in *B. blandum,* the differences are not always clear, but there are intergradations between them. The leaf-border has not been remarked in *B. Handelii* (or in *B. pulchro-alare*) (Brotherus, 1929a, b). As is illustrated here (Fig. 2, G & K), however, it is clearly differentiated also in this species just as it is in *B. blandum.*

Ecology *Bryum Handelii* grows on wet rocks in stream (sometimes may be aquatic) or on rocks or bark of trees (Ochi, 1959) under relatively humid conditions. Sainsbury's statement of the substrata for *B. blandum,* "on wet earth or rocks, sometimes aquatic" (1955, p. 275), should be looked upon as being agreeable well with the substrata for *B. Handelii.*

Judging from the data on the labels of the specimens available, these two mosses are generally fond of the cool-temperate to subarctic (subalpine) climate. In conclusion, these two mosses occur under nearly the same ecological conditions, although one is distributed in the southern and the other in the northern hemisphere.

Finally, these two mosses should not be separated specifically from each other, but can be better separated as different subspecies of the same species by the morphological differences.

Bryum blandum Hook. f. et Wils., London Journ. Bot. **3**: 546 (1844)

ssp. **blandum** (Fig. 1)

Specimens examined. CAMPBELL ISLAND. Herb. Musc. *W. Wilson 22*—isotype (BM). NEW ZEALAND. No detailed locality: Coll. *F. C. Mapplebeck* in 1866 (S. O. Lindberg Herb. of H); J. D. Hooker—*Wilson 352* (BM); *T. C. M.* 185 (BM); Herb. *E. Hampe 225* (BM); *Wilson 1165b* (BM). South Island: Kelly's Hill, Westland, coll. *D. Petrie* (BM); near Lake Wakatipu, coll. *Meikeljohn* (BM); on wet rock, Waikari Gorge, coll. *Hodgson* (BM); Lake Rotoite, *Sainsbury 305* (BM); *S. Berggren 790* (BM); *R. Brown 199* (BM). North Island: Auckland, *Knight 223* (Lindberg Herb. of H, BM); Waitakarei Hills near Auckland, *Murray 36* (BM); *Berggren 2630* (BM). TASMANIA. Guy Faukes Rivulet, near Hobart, on rocks in running water,

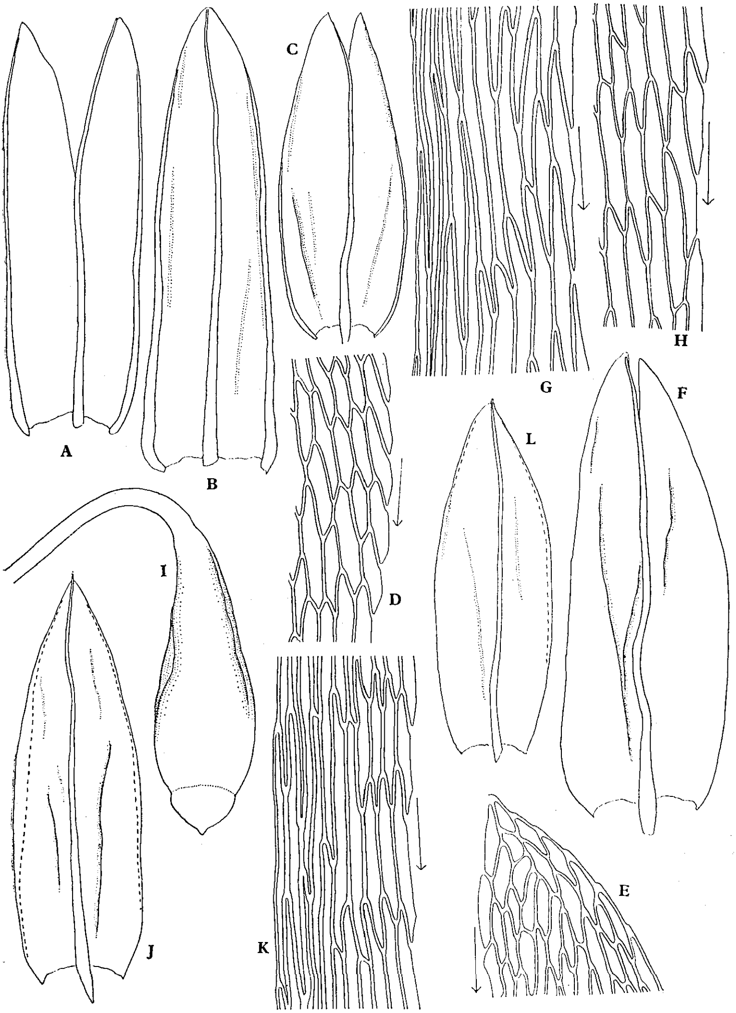

Fig. 2. *Bryum blandum* ssp. *Handelii* (Broth.) Ochi.

A & F. Leaves of main stems (torn at the apices), ×22. B. Perichaetial leaf, ×22. C, J & L. Innovation leaves (C has been torn at the apex), ×22. D & H. Lamina-cells in the median portions, ×200. E. Apex of innovation leaf, ×200. G & K. Lamina-cells at the median margins, ×200. I. Capsule, ×11. A-E drawn from "*H.O. 7340*", F-I from "*H.O. 6008*", J-K from "*H.O. 3762*" and L from *H.O. 4996*".

Weymouth 2154 (BM); *Lawrence H242, H2825* (BM).

ssp. **Handelii** (Broth.) Ochi, stat. et comb. nov. (Fig. 2)

Bryum Handelii Broth. *in* Symb. Sin. 4: 58 (1929)—*B. pulchro-alare* Broth., Rev. Bryol. n. ser. 2(1): 5 (1929)

Differing from the typical subspecies in the leaf-apices being much more pointed or slightly acuminate.

Specimens examined. See Ochi (1954, '59 & '62).

Brotherus (*l. c.*) once considered *B. pulchro-alare* as belonging to "Alpiniformia". As had been pointed out by Hooker f. & Wilson (*l. c.*), however, this species should be better accepted as an alliance of *B. cellulare*, judging from the plants being soft and often reddish-coloured, subjulaceous foliation, leaf-shape, slender costae, lax leaf-areolation and the ecology.

Some tropical mosses, such as *Bryum cellulare* and *B. pulmosum*, which had been considered as belonging to "old-tropical" mosses, have recently been revealed to be distributed also in Australia (Ochi, 1968). Judging from the distributional pattern, *B. blandum* (incl. ssp. *Handelii*) can neither at all be accepted as an old-tropical nor a "Sino-Himalayan and Japanese" moss. It may be a problem of big interest in the future to clarify how this species has become distributed in the two hemispheres.

Literature cited

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最近オーストラリアやニュージーランドのカサゴケ科セン類を検討しているが，その一種 *Bryum blandum* (ニュージーランド・キャンベル島およびタスマニアに分布) がタキミハリガネゴケ (中国の雲南省・台湾および日本に分布) と非常によく似ていることに気づいた。それらの形態や生態を調べた結果，両者を同一種とし，亜種の段階

で区別することにした。両者とも生態的には冷温帯〜亜寒帯（亜高山）生のものとみなされる。筆者はかつてタキミハリガネゴケを“中国・ヒマラヤ・日本要素”と考えたが，本種（亜種を含む）の分布型はそれとは全く別のものである。種の分布や分化の方向を探るのには面白いものがみつかったと言うべきであろう。

○地衣類思い出話 (14)（富樫 誠） Makoto TOGASHI: Miscellaneous notes on lichens or lichenological survey (14)

日本産地衣の3珍品と云えば，其第一は大正14年6月武州三峯山奥院で，当時東大薬学科三年生の岡見清二氏（現在武田薬品重役）が何気なく摑んで来たものを朝比奈先生が一見珍物と睨んで，維納のツァールブルクナー氏に送り *Glossodium japonicum* Zahlbr.（ヘラゴケ）と云う名がついて，従来南米コロムビアで一箇所特産の *G. aversum* Nyl. の同属と判明し，それからは日本の採集者達は意識的にこれを尋ねて，北は樺太，北海道から本州，四国に其産出をたしかめられ，九州の本島には見付からないが屋久島の永田岳で発見されて日本を縦断して産する事が判明した。第二は昭和7年(1932)に藤川福二郎氏が北海道大雪山（桂月岳）で獲た *Acroscyphus sphaerophoroides* Lév.（カニメゴケ）で，中南米（メキシコ，ペルー）とアジアではヒマラヤ，雲南に産する粉果地衣で，昭和27年には黒川道君が信州三ッ岳で又昭和29年には御嶽山の飛驒口から登り詰めた峠で又見付けた。ヒマラヤ産のものと比較すると全体が小形である外は形状，成分に差はなく，ヒマラヤ植物と日本植物との近縁を証明する一員である。第三は昭和30年12月に小生が兵庫県川辺郡多田村の多田神社境内で見付た *Thysanothecium nipponicum* Asah. であろう。多田神社は始め南へ向て流れている猪名川が東へ曲る角の丘陵上にあり，欝叢とした巨樹に囲まれ神社の尊厳を保って居る。此の神殿の真裏に石燈籠と並で三抱え計りの太い杉の木の根元にピッタリへばりついた地衣の群落があり，小形のヘラゴケ様の子器も沢山ついて居たのを先生の所へ送たのが *Thysanothecium nipponicum* Asah. と命名され，同属のものでは濠州，瓜哇に次で第三番目の産地

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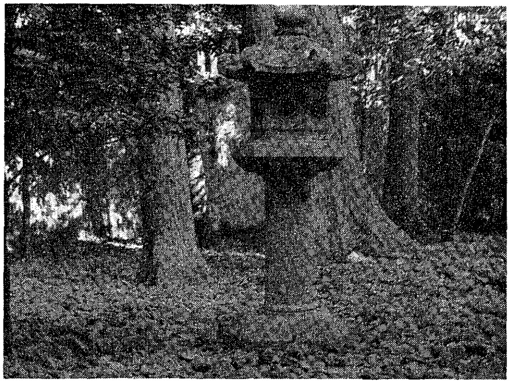

Fig. 1. Tada Shrine, type locality of *Thysanothecium nipponicum* Asah., where the type was collected on trunks of *Cryptomeria japonica*.